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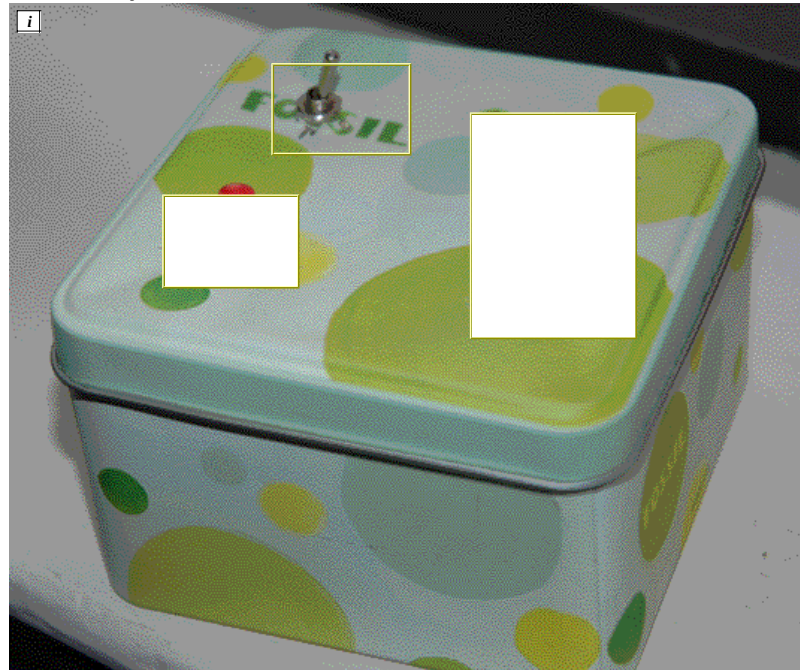
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intro **Looper**

Make an audio looper for under \$20

**step 1** Gather your parts

Get all these parts, available from your local Radioshack:

1. 20-second recording module, part #276-1323
2. Two output jacks of your choice (I used 1/8" mono phone jacks)
3. 1 SPST toggle switch
4. 1 (or more) N.O. momentary pushbutton switches
5. 1 9V battery
6. A cool box/container to put it in
7. Supplies that I assume you already have: wire, wire clippers, solder, a soldering iron

comments (0)

step 2 Explore and Prepare the PCB

This is a drawing I made of the small circuit board that is the entirety of the recording module. It has a little speaker, 9V battery clip, pushbutton switch on an attached mini PCB, another pushbutton switch attached to the main board, a black-blob IC, and various resistors, capacitors, and a transistor.

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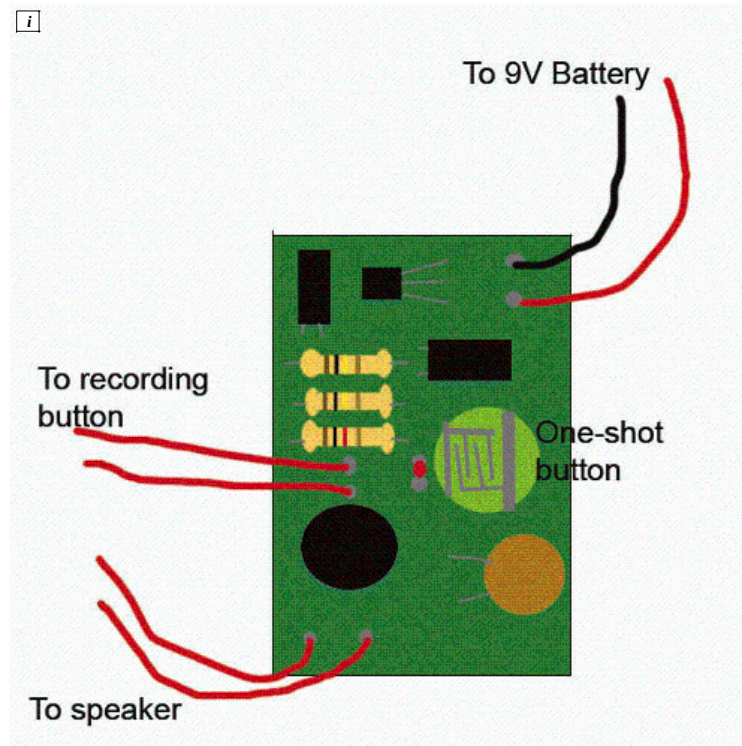
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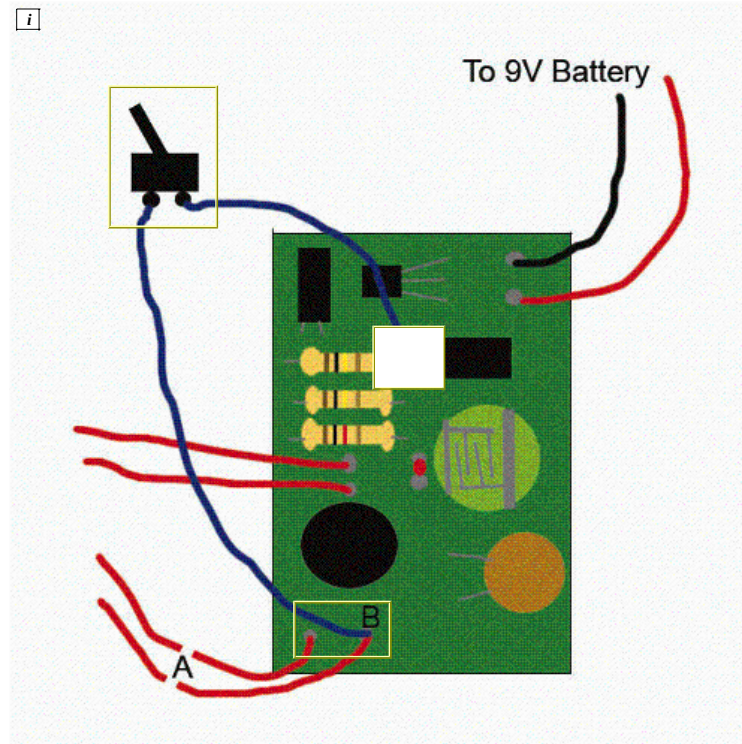
comments (0)

step 3 Surgery!

Pry the little tabs up which keep the pushbutton on the main board. They are on the back of the board. The button itself should come off really easily.

Cut the wire leading to the speaker at point A, or you can simply desolder where they join to the PCB.

Locate R3, which is labeled on the board itself. If you can't read the numbers on the board, it's the resistor at the top, if your board is oriented like the picture above. The lead on the inside, point C, is where you will solder one wire. Attach the other end of that wire to one lug of an SPST toggle switch. Attach another wire between the other lug and either one of the points where the speaker attaches to the board; mine is at point B. This is the loop connection.



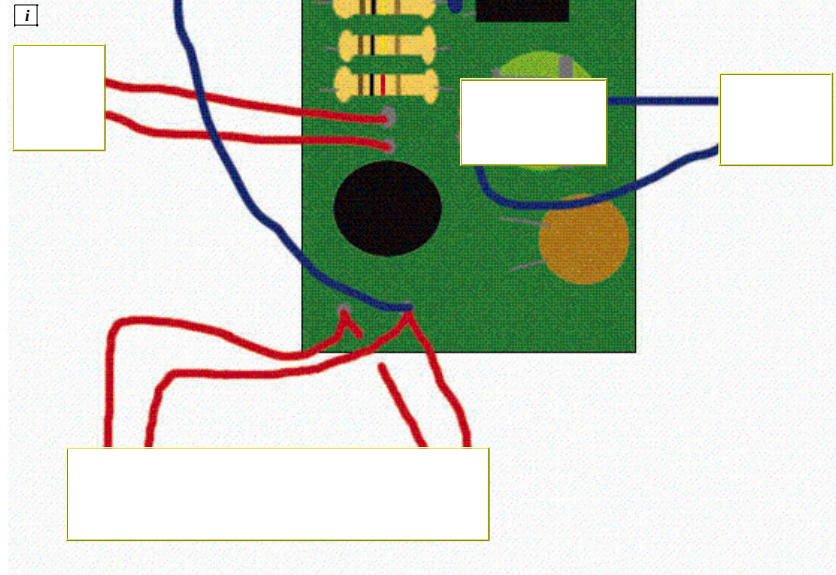
comments (0)

step 4 I/O

Here's where you give your looper ears and a voice. Solder in two wire at each point where the speaker wires were. At the end of each, attach the audio jack of your choice: 1/4", 1/8", RCA, etc. I used 1/8" minijacks.

Some optional steps:

1. Detach the existing pushbutton switch on the smaller PCB at SW2. I did this and replaced it with an easier-to-mount N.O. momentary pushbutton switch.
2. Make a new one-shot switch by soldering directly to the exposed traces where the button on the main board used to be.



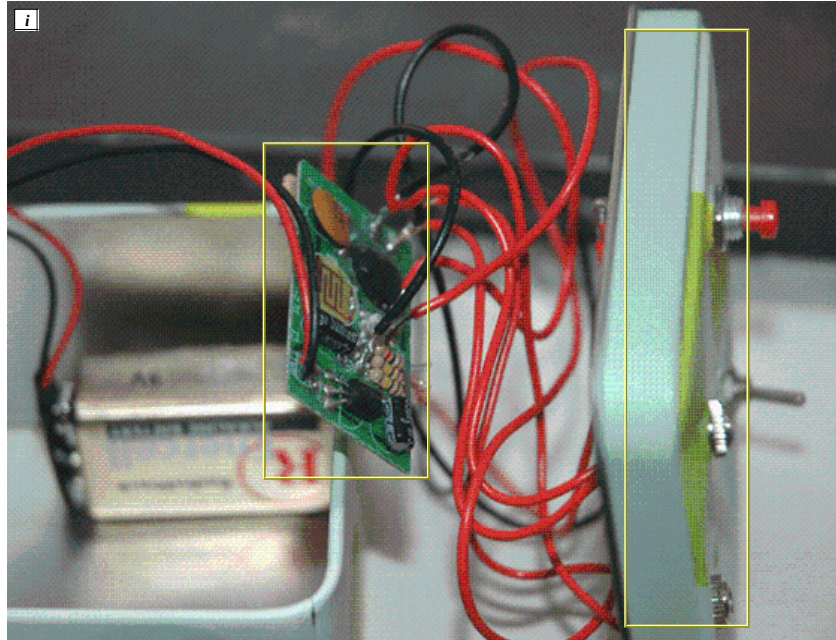
comments (0)

step 5 Finished (almost)!

And there you have it, a finished looper. All that's left is to house it in something. I put mine in a Fossil company watch tin. These are great for smaller projects like this; they're compact, easy to drill, and are funky-colored. Of course, spray paint is always an option.

To record, hook up some sort of input device to either jack, hold down the momentary pushbutton switch you either did or didn't wire into SW2, and speak/push play/press a key/whatever you're doing to make sound. I wired the headphone jack on my laptop to it and play clips of recorded audio. When you're done recording (up to 20 seconds), let go of the button, and flip the toggle switch (after plugging a speaker up to the other jack). It will loop continuously. Some cool percussion loops can be made using this simple method.

The looper has some quirks associated with it, but I'll let you figure them out, it's more fun that way.



comments (2)

Comments



colin says:

I totally love the look/feel of the hand drawn circuit schematics. It makes me wish that there was a "KidPix"esque filter that I could run all of my circuit layouts through.

Cool Project. When you buy the recording module from Radio Shack does it come as is, or did you have to disassemble it?

Apr 5, 2006 [reply] [flag]



dosher says:

The module came entirely assembled, just some minor deconstruction was required, and my trusty desoldering braid took care of that nicely.

Apr 5, 2006 [reply] [flag]



b.scott says:

Brilliant! I assume the output is quite high because it feeds a speaker. Any chance of bringing the output down to a line or guitar level? Maybe just throwing an audio taper pot before the jack? (Can you tell I'm totally oblivious to these things?) I'm imagining a fleet of these little guys in an MXR style enclosure all voer my pedalboard...

Apr 5, 2006 [reply] [flag]



dosher says:

The output is a bit high, and a pot would most likely work. That's something I'll have to check out.

I had a vision of these beastsies all strung together, maybe a patchbay so I can sample between them. I think I just drooled a little...

Apr 5, 2006 [reply] [flag]



dosher says:

colin: the recording module came assembled, so I had to clip some wires and use my trusty desoldering braid a bit, but no big deal, it was minimal deconstruction.

b.scott: the output is fairly high, and I imagine it would work to put a pot in line with one of the jacks, I might have to try something like that. I was also thinking of something like a bunch of these chained together, output to the next ones input, then the last one out to a mixer. You could inter-sample them, get some wicked cool drum samples... I think I just drooled a little...

Apr 5, 2006 [reply] [flag]



ankur says:

Hiya, awesome project!

Do you have any recordings of it in action?

Apr 5, 2006 [reply] [flag]



dosher says:

Whoah, sorry about all the double posts, my comments weren't showing up so I posted them several times... I guess there's a time delay (this is my first project on instructables, still learning).

Indeed I do have an audio clip. I sampled my circuit-bent Speak & Math, let it run, and then let the Speak & Math play underneath it. It's a pretty cool effect, although the quality wasn't the best as I was just recording through my laptop's internal mic. Here's the clip: <http://www.manningave.com/blog/media/looper.wav> (2.4 MB)

Apr 5, 2006 [reply] [flag]



southseahobo says:

Fun project. I did this with my son last night and he's got it at school today. LOL. Do you have any writeups on how you circuit-bent the Speak&Math? I've got a bunch of old talking toys that I'd like to mess with...

May 9, 2006 [reply] [flag]



vitruviano61 says:

I don't live within 1000 miles of a RadioShack, but I'd like to try to make this anyway. Can you identify the part number of the IC?

Thanks!

--v

Apr 6, 2006 [reply] [flag]



dosher says:

The IC itself is just an epoxy blob, but the whole thing is available online at the radioshack website.

Here's the link:

<http://www.radioshack.com/product/index.jsp?productId=2102855&cp=&origkw=recording+module&kw=recording+module&parentPage=search>

Apr 6, 2006 [reply] [flag]



retinaburn says:

I love this project. I had seen something on boingboing awhile ago about a similar device, and I think another one where you could tap out a beat in record mode and it would thump on whatever it was sitting on the same beat looped.

I was thinking of something like this in a series of small boxes for looping effects in a live musical type environment. Being able to stretch/reverse/compress etc would be nice.

I have very little experience with electronics, and even less in the audio domain. But this is part way to what I was imagining.

Thanks

Apr 6, 2006 [reply] [flag]



b.scott says:

The lag is deceiving...

You could also put the looper into a true bypass loop so it didn't degrade your signal when you weren't using it. So the one I'm seeing has a true ypass footswitch, a momentary record footswitch, and a spst play footswitch (use a bigger switch to also operate an LED). Should be super easy to wire up a barrel connector for a power supply as well.

My soldering iron is back home, but it looks like I have a project for the summer. Thanks again for a stellar project!
Apr 6, 2006 [reply] [flag]



jason_md2020 says:
This looks so cool. And to think I was looking at those \$250 Boss looper pedals. I think I'll try using DPDT switches and wiring two modules together with RCA in/outs. Perfect for the DJ mixer...
Apr 8, 2006 [reply] [flag]



SmithEsquire says:
i made one this evening, and it works great
i even put it in a cardboard box so it looks like a crappy effects stompbox
thanks!

+josh
Apr 12, 2006 [reply] [flag]



cryinglandscape says:
This is great; thanks! Does anyone have any idea how to monitor the sound as it goes into the device?
Apr 12, 2006 [reply] [flag]



b.scott says:
Forgive my audio electronics ignorance... But could you simply connect the hots of the input and output jacks? That way the in to out signal and the looper would run in parallel, meaning you always had your clean signal, and you have a looped signal when you activate it. Thoughts from people that have made them?
Apr 18, 2006 [reply] [flag]



technofrosty says:
this project is cool i definately plan on building one. does anyone have any more info about the other device that retinaburn mentioned like, its name or even a link. ive heard of it too only i couldn't remember where i saw it lol ive checked everywhere for more info but couldn't find out any more info about it.
Apr 19, 2006 [reply] [flag]



technofrosty says:
i found the link for the similar device mentioned by retinaburn. its called the beatbox heres the address if anyone is interested

<http://www.extraversion.co.uk/beatbox/promo/movie.htm>

its also mentioned here

http://musicthing.blogspot.com/2005_06_01_musicthing_archive.html

Apr 21, 2006 [reply] [flag]



smitty says:
I've made mine for use with a guitar but the playback is terribly distorted and extremely loud. Anyone got any fixes? I also connected the input and output jacks together for a bypass but, nope, didn't work. Any suggestions?
Apr 23, 2006 [reply] [flag]



decree says:
I to am using the looper with a guitar and am having trouble with the output, there is none. I don't know much about this stuff.
Apr 28, 2006 [reply] [flag]



decree says:
Ok, I have sound, but now Im in the same boat as smitty. It also has an annoying click each time the loop cycles, any suggestions?
Apr 28, 2006 [reply] [flag]



fatdave says:
I was thinking, and theoretically you should be able to integrate into this the pitch shifting aspects of the big mouth billy bass project. I'm going to have to give that a shot, as well as adding a volume knob.

great project, thanks for the start.
May 6, 2006 [reply] [flag]

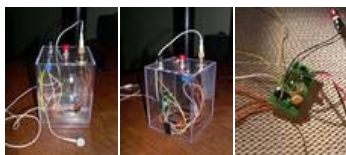


Thomas Tcherrick says:
Fatdave: Your idea must be a logical path to an advance on this project because I dreamed up the same thing, including the volume knob, as toy for my nephew (Though I'm still at the drawing board stage). One change: I'd like to stay more purely "existing/recycle" in my approach so I'd like to start with an old 90's tapeless answering machine in my garage. Question to all: anyone ever "reassign" an answering machine? Thanks!

And big thanks to dosher for this wonderfully original idea!
May 7, 2006 [reply] [flag]



fleanine says:
Thanks for a great after-i get-home-from-work project. I am relatively new to all this stuff, but always had a great interest. This was an awesome project to get started. If you want to see how mine came out including a close up photo of the actual circuit board, check out <http://www.toomanymorons.com/updates.htm>
Thanks Doshier!!!!!!!



May 9, 2006 [reply] [flag]



dosher says:

Wow! Awesome container for the looper. Maybe some flashy-flashy LEDs would be in order, or some sort of sinister blue glow...

Jun 17, 2006 [reply] [flag]



fleanine says:

here is a direct link to the part on the page where my pix are located.(so you don't have to scroll through the page, otherwise... just scroll to the 5-09-06 entry)

<http://www.toomanymorons.com/updates.htm#looper>

stop by my guest book while you are there, say hi...

Aug 11, 2006 [reply] [flag]



dillon says:

sorry, but I'm still a bit confused on how you differentiate between the output and input jacks. could someone explain how if the module only comes with a speaker how this works?

I plan on building two, and housing both on seperate sides of a cigar box!

May 18, 2006 [reply] [flag]



decree says:

You dont. The input and the output are one in the same. The analog signal comes into the unit the same way it exits via a magnet and a coil. Howstuffworks.com gets into the specifics.

May 18, 2006 [reply] [flag]



dillon says:

so I'd just wire two output jacks to that spot, and it wouldn't matter which one I decided to use for the input or output? thanks!

May 19, 2006 [reply] [flag]



decree says:

What i dont understand is why I cant hear my guitar through my amp w/o looping. There is a direct connection between the input and output. Is the signal from the guitar too weak to get to the amp with the looping circuit hanging off of it? If so is a preamp necessary? I just want to be able to play while my loop is looping.

May 18, 2006 [reply] [flag]



dillon says:

I was going to remedy that problem with a 1in2out cable and a tiny dod battery powered 'mini mixer' with all my stuff going into my amp. I don't play guitar, I play tapes... so I guess that works for me? hopefully it will help you.

May 19, 2006 [reply] [flag]



Rust1d says:

Thanks Doshier for posting this project. I was at a Digg link last week with an open directory of TV Theme song mp3's and had an idea to use the Sanford and Son song as theme music on my cousins truck (without him knowing). I used your looper plans in an altoids box and poached a switch out of an old handheld game, that uses a ball to detect the units orientation, to set it off. Added a pair of battery powered speakers. Stuck it under his back bumper and whenever he hits the brakes... theme music for his truck



May 25, 2006 [reply] [flag]



dosher says:

Hahahaha, I'm glad you found such an original use for this, thanks for the update! Also, thanks to everyone who checked out my project, a double thanks to everyone who tried it out, and gnarly thanks to the Squid labs people for giving me an honorable mention in the April/May contest!

Jun 17, 2006 [reply] [flag]



dig412 says:

It looks awesome! but i live in the uk, and radioshack dont ship abroad :(Could someone get one and post it to me? i'll gladly paypal you \$20 (Â£10.70, pound is worth loads :P), should cover the item and delivery at least. Email me if your interested - dig412@gmail.com. If not, does anyone know of similar ic's?

May 27, 2006 [reply] [flag]



b.scott says:

Alright, friends, I could sue a little help trouble shooting...

I think I hooked up the barrel jack for my power supply wrong because when I went to test the unit (before the switches were wired but after the jacks were), the little black barrel guy right above the three resistors got ridiculously hot. The LED also stopepd working at this time. Now, even when the polarity is reversed (ie, either way), the black barrel shaped component gets super hot and the LED does not light ever. Have I fried mydigital recording module? How can I avoid this problem on the next one? Thanks for your help!

Jun 18, 2006 [reply] [flag]



guitarman63mm says:

alright, this is bugging me. i went out, got all the parts, right? but now i have a question. when i'm playing guitar, and i got this little bugger on my pedal board, that toggle is hard to use with me foot. *has idea* maybe i'll just use my other pushbutton switch

and to b. scott... i just looked on my module. its a 47uf cap (capacitor) and what pisses me off is that it's only 10v. any fluctiation in voltage could screw him up (not expensive though, just a cap)

Jun 23, 2006 [reply] [flag]



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Jun 23, 2006 [reply] [flag]



guitarman63mm says:

well, i tried a few different methods, none of which worked :(probably bacuse i tried it with an ac adaptor and switch tip thing.

i'll try it tomorrow without any of my mods and see how it works

Jun 23, 2006 [reply] [flag]



guitarman63mm says:

ok, now i have the terribly loud and distorted noise. how do i fix it again?

Jun 24, 2006 [reply] [flag]



b.scott says:

Guitarman: I think the level is up so high because it is designed to drive a speaker. Can you just put a pot before the jack and turn it down? Can it be that simple? Let us know how it works out.

Also, did you ever get your power adaptor working? What did you end up using? How did you wire it up? I tried to use my OneSpot adaptor (9v, up to 1700mA), and ahd the aforementioned results.

Jun 25, 2006 [reply] [flag]



mrt0mjones says:

So, i' pretty much joined this thing just beacuse of this looper.

I've been working a bit harder on it to try to get clarity, messed around with a pot, but still no friggun luck.

has anyone managed to get the clarity out of this thing with a guitar and amp??

Jul 1, 2006 [reply] [flag]



deadanddrawn says:

I still havent built this yet but for the over powering of the output, it is because the signal is coming out at a speaker level rather than a line level. A simple voltage divider such as this should work.

Jul 5, 2006 [reply] [flag]



bignothing says:

I'll be making one of these when I get home from work today, though I'd be very interested in any mods people come up with for these, especially for a volume knob and bypass. I'd love to be able to turn these into something practical and stage functional.

Jul 6, 2006 [reply] [flag]



offlogic says:

Thanks for the looper instructable!

The model railroad folks use the RatShat module for playing sound effects on their layouts. The 'loop' hookup adds a new set of uses!

If you keep the speaker attached you can get better sound output by glueing a PVC pipe-cap (or the cap from a can of spray-paint) to the back of the speaker to form a speaker-box. It makes a huge difference.

If anyone is into PIC projects, Roman Black has uncovered some major sound-fun in his BTC project, at <http://www.romanblack.com/picsound.htm>. Sample/play/loop 30 seconds of CD quality sound with \$2 PIC and serial EEPROM chips...

Jul 12, 2006 [reply] [flag]



handpanther says:

has anyone tried putting a volume pot on one of the in/out jacks, for some neat attackless loops? I'm putting one in at the end of a serial chain, with a photo theremin in front followed by the guts of a shoddy delay pedal, all in one

box. volume swells would be a nice addition. anyone?
Jul 22, 2006 [reply] [flag]



b.scott says:
Friends, all that you've heard is true: Zachary Vex is a king among men. I asked him a question about created an audio looper, he shot this link back at me:

http://www.carriionsound.com/gallery/schems/in_the_lab/in_the_lab_3.htm

It looks like it solves a lot of our problems. I won't get to it until later next week- please post here if anyone tries it.
Aug 4, 2006 [reply] [flag]



bignothing says:
I presume the momentary switch attached to the recording button is no and not nc like that guide says. it sounds like the one shot should be nc. Actually, what the hell does the one shot do? play the sample once? Does the led just get attached to one of the battery wires?

And I suppose I'd still want to do step 3 from this guide to be able to loop things.

I'll tinker around with this tonight, but if anyone has answers that would be great.
Aug 22, 2006 [reply] [flag]



bignothing says:
I just finished testing this little guy out. The big knob is the battery pot from carrion sound, the spst on top is on/off, the push button is record, and the spst below the pot is to loop.
I have a 100k pot in there now, but I can only turn the knob a little ways before it completely kills the sound, so I have very little room to play with that. Would a higher or lower value pot fix this?
And if I want a volume pot where would I wire it to? I mean, just to either of the speaker wires, or between them, or what



Aug 22, 2006 [reply] [flag]



Add Comment